

A MODERN REVIEW OF THE DEMISE OF
HECATERA DYSODEA D. & S.:
THE SMALL RANUNCULUS

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“Establishing the facts about extinct species has considerable detective interest, but at the end it is usually probability and not certainty which results” (Bretherton, 1951). This paper is no exception to the general rule.

A number of reasons for the local and national extinction of the small ranunculus moth have been proposed — climatic change, parasites, decline in lettuce seed production, change of lettuce variety, the introduction of glasshouse lettuce growing, the increase in small birds, and the most popular but vague “agricultural changes” — all without supportive evidence. *Hecatera dysodea* was a locally common moth during parts of the 19th century, although it may well have been much less frequent before the dramatic increase in the growing of eating lettuce, and that grown for seed, over those years. During the last quarter of the 19th century the insect disappeared from most of the localities where it had not been common, away from the east; the most striking decline occurred over the decade following the mid 1880s, when inroads were made in more eastern areas.

At the close of the century it was said of the species that “thirty years ago it was one of the most reliable . . . of visitors . . . but no such attractive visitant now haunts our London gardens” (Barrett, 1897), and it was completely absent in the south and west. After a rally in 1900, the insect rapidly lost ground in its eastern heartland and within a decade had disappeared from all but one of its traditional homelands. From 1912 onwards the insect became very rare in the whole country. After the First World War there were no sightings until the 1930s when it was seen in Hertfordshire, Somerset and Sussex. These were the last unquestionable British records.

As a rule the imago flew during the latter part of June and early July and usually came to entomological notice feeding from flowers at early dusk. Larvae fed on the flowers and unripe seed-pods of cultivated lettuce (*Lactuca sativa* L.), wild lettuces (*Lactuca serriola* L., *L. virosa* L., and *L. saligna* L.), various sow-thistles (*Sonchus* spp.), and reportedly on smooth hawks-beard (*Crepis capillaris* L.); its name of *dysodea* probably originated from the larvae, as it means “ill-smelling”. The larva pupates just underground at the end of August.

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The Records

A distribution map has been published (Heath & Emmet, 1979) showing that the species was found mainly in eastern England but completely absent north of the Wash; the insect was also almost absent from central southern England and usually rare south of London and west of Hertfordshire.

During parts of the 19th century the species was reported as locally common in Suffolk, Essex, Norfolk, Surrey, north-west Kent, Cambridgeshire, Huntingdon, and the Greater London area; it was uncommon, but present, in Sussex, Dorset, Berkshire, Oxfordshire, Somerset, Herefordshire, Hampshire, Gloucestershire, Worcestershire, Glamorgan, Hertfordshire, Northamptonshire, and Bedfordshire.

In Kent, and many of the leading counties for fresh vegetable and seed growing, the distribution of *dysodea* followed that of the market-gardens; by far the most records came from these areas and larvae were sometimes "really mischievous" (*loc. cit.*). The insect's headquarters in Kent were at Dartford, in Cambridgeshire at Wicken and Cambridge, and in Hertfordshire in five places all around Hoddesdon.

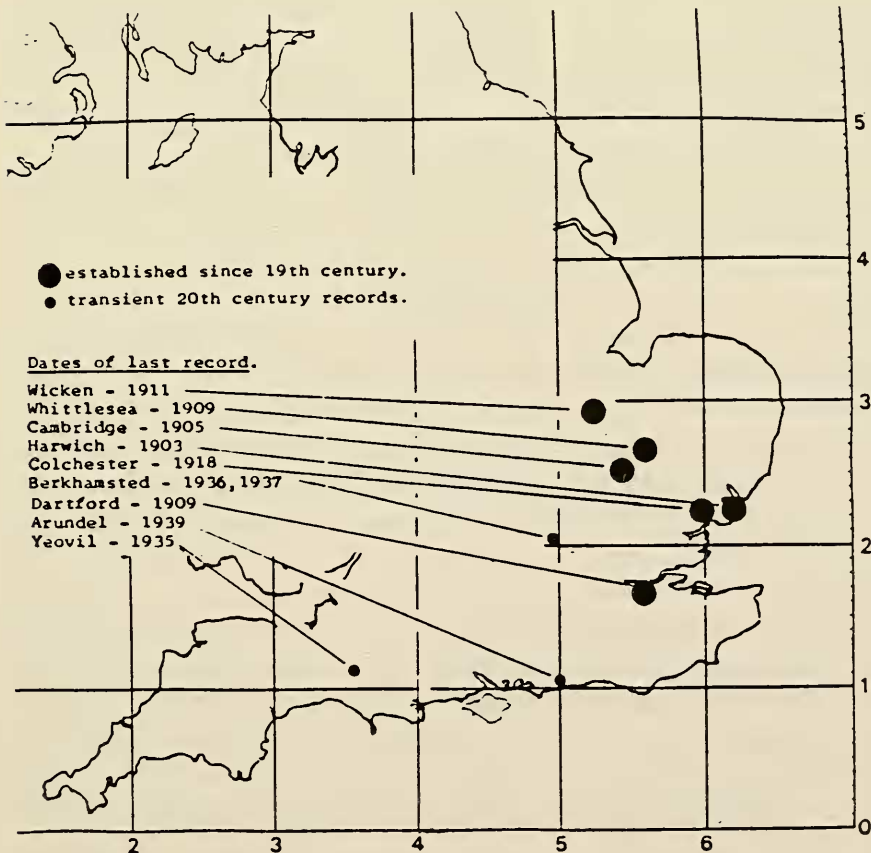


Figure 1. Status and distribution of *Hecatera dysodea* 1901 to date.

The heyday for the small ranunculus was between 1896 and 1900 inclusive, when it was found in at least seven counties — Kent, Suffolk, Surrey, Cambridgeshire, Essex, Gloucestershire, and the West Country (Somerset?).

The recorded occurrence of the insect was cyclic; in Kent the records are virtually annual between 1845-48, 1857-60, 1871-76, with later sightings in 1896 and 1909 (Barnes-Hune, 1960-61). Similarly in Cambridgeshire although there are isolated records for 1825, 1845, and 1885, *dysodea* was noted almost continuously from 1896 to 1911 inclusive; it was also seemingly briefly established at Berkhamsted in Hertfordshire during the 1930s. There are relatively few dated reports from other counties. Nationally the moth was inclusively recorded from 1843-48, 1857-60, 1871-76, 1896-1911, and 1935-37, almost sequentially; it was also found in 1825, 1888, at Colchester in 1918, and in 1939 at Arundel, Sussex. The last British mention is contained within an anonymous field note published in 1951; the insect was reported as having “almost disappeared. In fact until a few years ago it was held to have deserted our island. However, it still exists in at least one county” (Anon 1951). A summary of the known records was then published (Bretherton, 1951) and only a few additions and corrections have been made since — but no more *dysodea* have turned up. Surely there are unpublished details on specimens in private collections that would add to our knowledge and the records listed here?

An extreme view would be to suggest that the species was never permanently established here, as serial sightings from individual spots are few, but this seems unlikely — at least until after the First World War.

Foreign Imports

The insect was widespread and locally common in France and Belgium over the first third of this century (Culot, 1909-13; L'Homme, 1923-35), as elsewhere on the continent, and this status has been retained to the present day, although a decline has been reported in north-central Europe after 1960 (Heath & Emmet, 1979). There is no evidence of a European decline synchronous with our own.

About 20% of lettuce consumed in Britain over the early years of this century (about 10,000 tons per annum) was imported from Holland and France, together with small quantities from Belgium. The French supplies usually arrived from December to May from Perpignon and just south of Paris; Dutch imports arrived from late April through to November (Ministry of Agriculture & Fisheries, 1932). In England, mainly in black soil areas, Cos lettuces were pulled rather than cut (Min. of Ag. & Fish, 1955) and if this practise was also performed in the European exporting countries it is just conceivable that the occasional *dysodea* pupa could have been im-

ported with root-attached earth. Could imported pupa have contributed to, or even be the source of, the records in this country after the First World War ended — or even before? The insect was late established at Berkhamsted during the 1930s but had previously been reported close by — but not for about half a century; singletons were also noted at Arundel and Yeovil during this decade. Immigration seems unlikely, as not a single specimen has been seen in this country, despite the advent of coastal mercury-vapour moth traps, since the beginning of the Second World War. Therefore, on the available evidence, it is more likely that the moth maintained itself here at a very low density.

“The majority of recorded distributional changes and persistent changes in the abundance have resulted from vegetational changes — most of them from vegetational changes that either were caused by man or arose from the ecological successions of vegetation that human activities permitted to commence” (Beirne, 1955). There were only three ways in which *dysodea* could have existed in this country — on wild plants, on lettuce grown for seed, or on cultivated eating lettuce which had bolted.

Wild Plants

It has been pointed out (Heath & Emmet, 1979), that the geographical distribution of *dysodea* broadly corresponds with that of the wild lettuces *L. serriola* L. and *L. virosa* L. (Perring & Walters, 1976, Prince & Carter, 1977). Both of these possibly alien plants were first recorded during the first half of the 17th century and were not common or widespread; the increase in distribution to today's level commenced during the 1920's and followed the expansion of suitable habitats accompanying arterial roads (Salisbury, 1964). The distribution of *L. serriola* L. is especially coincidental with *dysodea* but that of *L. virosa* L., perhaps formerly the most frequent of the wild lettuce, declined in some western parts and a few localities in Suffolk at some time prior to 1930 (Perring & Walters, 1976) — it has been shown that the moth first disappeared from the west (Heath, 1974). However, this apart, there is no evidence of a national decline in the frequency or distribution of the wild lettuces coincidental with the disappearance of the small ranunculus, quite the reverse; moreover, there are only a few published records of larvae feeding on these wild plants, especially smooth hawks-beard — commercial and home-grown lettuce being much preferred — and the distributional coincidence is meteorological and not botanical. This is illustrated, for example, by the fact that the distribution of the insect is markedly similar to that of British vineyards during the Middle Ages (Lamb, 1965) — clearly a climatic coincidence.

Wild plants were never preferred in this country and the insect

was always local even in its commercially gardened strongholds, making successful dispersion to these plants when under pressure from lack of flowering domesticated lettuce less likely; but the main reason why the moth did not profitably transfer to wild plants was apparently because those it favoured were rare.

Lettuce grown for seed

The larva of *dysodea* feeds only on flower buds, heads, and unripe seed-pods of lettuce. Bolted lettuce, even before flowering, are of no use for human consumption due to the development of a bitter tasting substance. Therefore when *dysodea* was "a pest of lettuce" this would surely refer only to those plants grown for seed — the insect would scarcely be called a pest on an already written off plant.

Growing lettuce for seed was substantially confined to the counties of Essex, Kent, Cambridgeshire, and probably Suffolk. In Essex vegetable seed growing was mainly carried out at Coggleshall, Kelvedon, Marks Tey, Boxted, Lawford, and Frating (Pettit, 1941); in Kent seed crops were grown at Thanet and Romney Marsh (Stamp, 1943), and at Hoo, Sheppey and Sandwich (Hall & Russell, 1911) but these last three had ceased production at some time before the turn of the century; fields of vegetables grown for seed could be seen at Ipswich, in Suffolk (Butcher, 1941), but little is known about the seed gardens in Cambridgeshire apart from the fact that a small amount was farmed.

Unusually advantageous opportunities existed, and were sometimes utilised, for *dysodea* when lettuce was grown for seed; writing at the time, it was said of larvae that "when it is common the prospect of seed is sometimes quite destroyed" (Barret, 1897). Essex was by far the foremost county for vegetable and other seed growing during the 19th century, including lettuce, and the early history of the county's industry has been published (Glenny, 1907); it is probably typical of the whole industry. The wholesale growing for seeds commenced about 1780 and increased considerably over the following decades — this being a locally large industry in Essex by the 1820's. During this decade the industry continued its growth, especially at Kelvedon and Coggleshall, and later at Colchester and elsewhere. During the rest of that century the whole local eating vegetable industry had to move several times due to encroachment by housing, although it was still mainly confined to south Essex, and no doubt the seed growers were forced to follow suit. Lettuce seed growers soon had to contend with imported seed, from France, and by the turn of the century most came from that source. Before 1900, in Essex the moth was only reported from Walton-on-the-Naze on wild lettuce, and at Coggleshall and Colchester on *L. sativa* —

both seed growing districts – and the insect was not as widespread here in entomologically historical times as might have been thought, probably due to the disruption of the market-gardens. By 1907 there were 45 firms growing general seed in the county and these were still increasing, some probably migrating from south of the Thames, and more than 4000 acres were involved. Lettuce seed continued to be grown in this country over the following decades but at a much reduced level; the industry was still largely localised to Essex and heavy foreign imports continued to have an increasingly large impact. Through the Second World War years lettuce seed was probably imported from California but some was still produced here. Soon after the war, due to imports and the uncertainty of home produced lettuce seed, this part of the industry finally collapsed. Over the years the competition in lettuce seed had come from Spain, France, the USA, Italy, Australia, and New Zealand – all having a more equable climate. British growers were crucially dependant upon good weather to cure the seeds and decrease shattering, and many disasters must have been experienced due to our capricious climate and the attentions of other insects. For example, the maggots of the lettuce-fly (*Anthomyia lactucae*) were very destructive to the seed crop and sometimes caused its complete failure by devouring the seeds.

It has been suggested that the decline of the small ranunculus was linked to the demise of the British lettuce seed growing industry, but without supportive evidence. (Firmin et al, 1975). This could only have occurred in the four counties mentioned but the industry did dramatically decline at the latter end of the 19th century and subsequently, which certainly accounts for many, or all, of the local disappearances within those counties.

Eating Lettuce

The first known record of *Lactuca sativa* L., the worlds most popular salad plant, as a cultivated vegetable is in an Egyptian tomb painting dated about 4500 BC (Lindquist, 1960); its cultivation spread into Greece and Italy and then to the rest of Europe. Lettuce was introduced into English gardens in 1562 (Rhind, 1860) but the date of its very first arrival into this country is unknown although it may have been about 1440 (Webber, 1968).

Traditionally, commercially grown lettuce and that grown for seed has been predominantly farmed in the eastern counties due to the advantageous climate; the quantitative distribution in 1958 (Coppock, 1964), and to a lesser amount that about a quarter of a century earlier (Ministry of Agriculture & Fisheries, 1932), due to less detail, is similar to that of the small ranunculus moth – although the plant is also grown north of the insects apparent range limit. In the years leading up to 1930, up to 10,000 acres of land were

under commercially grown eating lettuce, the former figure probably being farmed since before the end of the 19th century.

Commencing at the end of the 16th century, commercial vegetable cultivation took place at localities then near London — Fulham, Kensington, Chelsea, Stepney, Bermondsey, Battersea, and Lambeth, have been mentioned (Fisher, 1935) — but most soon had to move as the city grew; by the mid 17th century gardens were also to be found at Putney, Sandwich, in Surrey and Bedfordshire, and elsewhere (Beavington, 1965). In the 18th century the Middlesex market-gardeners were famed for their lettuce and the gardens stretched from Teddington to the city. As London continued to grow the market-gardens previously strategically placed within a few miles of the metropolis, for reasons of accessibility to dung and for the quick transportation of perishable products, were forced to move further afield. By 1850 “the growth of gas-works, chemical works, and factories had so vitiated the atmosphere of the whole district as to prevent the satisfactory growth of vegetables even on such land as still remained available” (Glenny, 1907) and the growers were forced to move again. At this time most of the Brompton area was devoted to market-gardens but due to the continuing spread of house building they had to move in about 1868; this also happened to the gardeners at Hammersmith and Earls Court just after 1860, and to those at Rotherhithe in about 1880 (Olsen, 1976). The moths disappearance from the London suburbs, noted by Barrett who lived near Camberwell, was precisely coincidental with one of the main periods of market-garden removal. Many of the gardens which moved at this time recommenced on the north bank of the Thames, in Essex, joining the very early gardeners at Blackwater Valley — movements of 13 to 20 miles were mentioned. In 1907 it was said that “the last ten or twenty years have wrought further great changes in the market-gardening industry in Essex” (Glenny, 1907), it having become much less centralised, and many growers were ruined due to the better rail communications allowing the fresh arrival of vegetables, including lettuce, from both other counties and Europe. Nevertheless, large fields of lettuce could still be seen in Essex just after the turn of the century, which had been started out under glass — a relative innovation at that time. Lettuce growing was mostly confined to southern parts, spreading eastwards and to Tendring and central areas as time passed; as elsewhere, the gardens multiplied towards the close of the 19th century.

In north-west Kent market-gardening commenced in 1841 and five years later a highly cultivated strip stretched from Gravesend to Dartford. There were early gardens at Greenwich, Deptford, Lewisham, and Blackheath, but these were driven away by building in a south-easterly direction over the last half of the 19th century (Garrard, 1951), whilst later gardens tripled in number over the last

quarter (Orwin & Whetham, 1964) and stretched as far as the Darenth Valley (Hall & Russell, 1911). Lettuce was grown in hundreds of acres, these being concentrated at Wilmington, Sutton, the Hoo peninsula, and at the Isle of Thanet (Gerrard, 1951). The expansion of market-gardens continued over the following decades and especially after the First World War.

Surprisingly, only a small acreage of lettuce was grown in Cambridgeshire, it being a sideline at Ely. General vegetable production increased, locally on the fen and alluvial soils, from the second quarter of the 19th century until the four years war. However, methods had to be "adjusted to meet the greatly increased competition from overseas which had so seriously upset the balance of agriculture during the last quarter of the 19th century" (Pettit, 1941), although the number of gardens almost quadrupled over this period.

Market-gardening was not a major industry in Suffolk or Norfolk; however there were old established gardens at Sudbury, Ipswich, and Hadleigh, in the first mentioned county and locally large quantities of green vegetables were grown at Norwich, Hickling, Stalham, and Martham (Butcher, 1941; Mosby, 1938) in the latter.

A high amount of lettuce has been grown in south Surrey, early this century, but the earlier history is less certain. In Hertfordshire lettuce was grown in the Lea Valley from Enfield Wash to Hoddesdon, although much was out of season for *dysodea* and under glass; most growth occurred this century with gardens still moving away from London to the Upper Lea Valley during the 1920's. Lettuce was one of the principal vegetables grown in east Bedfordshire during the latter part of the 19th century and this continued well into this century. In Huntingdonshire commercial vegetable growing was insignificant except locally in some western places on the fen and alluvial soils. Lettuce was also grown, mainly under glass and out of season, at Frome, Taunton, and Bath, in Somerset, at Bristol and Cheltenham in Gloucestershire, at Swanley in Kent, at Willingham in Cambridgeshire, near the large towns in Wales, and at Exeter, Wimborne, and the Tamar Valley in the south-west, early this century. By the early 1930's Essex, still the highest producer, yielded only 15% of the total lettuce market, followed by Kent, Middlesex, and Sandy in Bedfordshire, and the whole industry had become considerably more disseminated.

Glasshouse cultivation originated as a commercial enterprise in Sussex, the Lea Valley, and north-west Kent, during the third quarter of the 19th century and then spread elsewhere (Webber, 1968). During the first third of this century at least, lettuce were almost exclusively grown to eating maturity under glass from autumn to spring — not during the insects flight time. Summer plantings were either directly drilled outside or were subsequently

transplanted outside after a glasshouse start, according to geographical situation (Ministry of Agriculture & Fisheries, 1932). It is thus difficult to see how this innovation could substantially affect the numbers of *dysodea*, as has been suggested (Heath & Emmet, 1979), even locally.

Although some districts changed their emphasis from one vegetable to another, and considerable local movement of market-gardens was experienced, the growers kept to the same general areas and the quantitative distribution of commercial lettuce in about 1930 (Ministry of Agriculture & Fisheries, 1932) and in 1958 (Coppock, 1964) would not have been dissimilar to that during the late 19th century, with some latterly increase to the southeast of London.

(to be continued)

Notes and Observations

EGIRA CONSPICILLARIS L. (THE SILVER CLOUD): NOTES ON THE FINDING OF EGGS IN THE WILD — I found several eggs batches of this species during May 1985 in a Herefordshire locality where I had obtained the moth in 1984. Eggs were deposited on old dock stems some way up on the plants, and were quite conspicuous. All batches were found along a narrow strip of land bisecting two fields. Nettle, *Rumex* and grasses were all that grew amongst adjacent fences. Two females of ab. *melaleuca* were also found, resting head down on fence posts not far from the two egg batches on May 14th. A further batch was found on 22nd May and two more the next night. Despite intensive searching of this piece of ground, no ovipositing females were seen or any pairings observed.

Some time was spent searching fence posts and old dock stems during the day, in company with B. Skinner and D. Chatelain, but we were unable to locate any other apparent breeding areas. The moth occurs in nearby woodland as well as in open country. Elm, the known larval foodplant is only present as a regenerated hedge along the road, and it seems likely that dock may be the natural foodplant for *conspicillaris* larvae in this district. Larvae from these egg batches were reared alongside offspring from wild-caught females and were supplied only with common elm. — J. PLATTS, 11 Maydowns Road, Whitstable, Kent.

A NOTE ABOUT SCYDMAENUS RUFUS MULL. & KUNZE. (COL.: SCYDMAENIDAE) — In Britain, *Scydmaenus rufus* has traditionally been associated with old trees. Joy (1932, *A Practical Handbook of British Beetles*) gives as its habitat "rotten wood". Donisthorpe (1939, *A Preliminary List of the Coleoptera of Windsor Forest*) recorded it from under oak bark and it was in such a situation that I first encountered it (three examples) at Wisley, Surrey in June 1974 in company with the ant *Lasius brunneus* Latr.